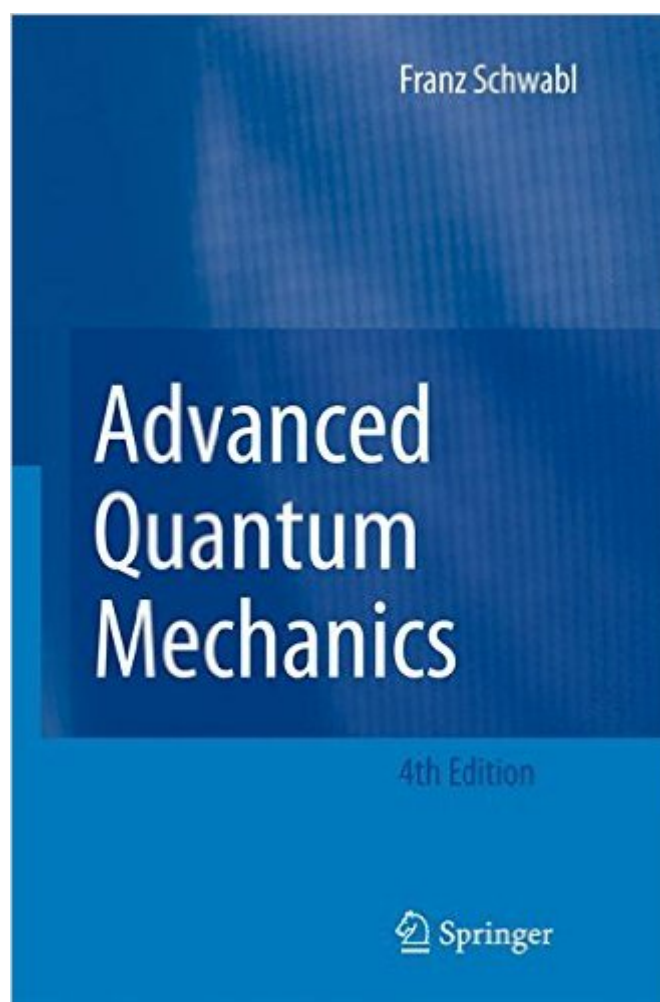


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Advanced Quantum Mechanics



Synopsis

Characteristic of Schwabl's work, this volume features a compelling mathematical presentation in which all intermediate steps are derived and where numerous examples for application and exercises help the reader to gain a thorough working knowledge of the subject. The treatment of relativistic wave equations and their symmetries and the fundamentals of quantum field theory lay the foundations for advanced studies in solid-state physics, nuclear and elementary particle physics. New material has been added to this third edition.

Book Information

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Customer Reviews

Caveat: My review pertains to the first (1999) edition (at 397 Pages). After spending much time with Sakurai's book of the same title (and not finding my voice there) it is a pleasure to recommend this book. Structured as it is into three sprawling parts: (1) Formalism of Second Quantization, (2) Klein Gordon and Dirac Equations, (3) Quantization of Radiation Fields and Quantum Electrodynamics. (Each part followed by a separate Bibliography). Structured throughout upon physical insight, mathematical derivations (complete) followed by numerous examples and remarks. Chapter One, Second Quantization, can hardly be improved upon. (The examples are a welcome addition in this first chapter). The Second Chapter--a delightful mix of the abstract and the concrete--espouses upon a gas of spin one-half Fermions. Next, of course, Bosons and the dilute Boson Gas along with a descriptive section devoted to Superfluidity. An unusual, fascinating, fourth chapter presents Scattering, density matrices, correlation functions followed by applications to harmonic

crystals,diffusion, damped oscillator. (These topics: difficult to find at this level and with such a surfeit of detail).The second part begins with five axioms--those axioms which comprise basic Quantum Mechanics. The development proceedshistorically--at first--and,even this approach is presented with utmost clarity of thought. Chapter Six, this is the way to presentLorentz Transformations and Covariance of Dirac Equation.(Define Up and Down indices,A Metric, no pesky "i"'s to keep track ofin the fourth component of four-vectors, that is, no "ict"). Spinors and Projection Operators: these end a lucid, useful, exposition.

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